

Notice of Allowability

Application No.

10/036,831

Examiner

Charles Chow

Applicant(s)

GOLDMAN, STANLEY J.

Art Unit

2685

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 3/2/2005.
2. ☒ The allowed claim(s) is/are 1-31.
3. ☒ The drawings filed on 21 December 2001 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

Detailed Action

Allowable Subject Matter

1. The following is an examiner's statement of reasons for allowance:

Claims 1-16 are allowable over the prior art of record, the prior art fails to teach singly, particularly, or in combination, for the allowable features for a fine tune, and a coarse tune, phase locked loop coupled to the **input terminal and driven by the input reference signal**, a **translation phase locked loop having unit multiplication factor** driven by fine tune signal, and the **Gilbert cell mixer combining the coarse tune signal and a divided down output signal of the fine tune phase locked loop** and coupling the mixed signal into the translation phase locked loop to generate an output signal with a frequency which is the linear sum of the coarse tune signal and the fine tune signal, **for the reducing the phase noise of the synthesizer**, as shown in independent claims 1, 14. The dependent claims are also allowable due to their dependency upon the independent claims.

The closest patent to **Birleson (US 6,163,684)** teaches the broad band frequency synthesizer (Fig. 2) having coarse PLL 23, fine PLL 24, translation PLL 22. Birleson fails to teach the input terminal and driven by the input reference signal, and a translation phase locked loop having unit multiplication factor driven by fine tune signal.

Fujii(Us 6,396,330B1) teaches the mixer circuit for the Gilbert cell double balanced mixer with reduced (col. 1, lines 6-8, col. 4, lines 49-52), forh gain for reducing distortion (col. 4, lines 32-52). Fujii fails to teach the above allowable feataures.

Other prior arts in below has been considered, but they fail to teach the above claimed features.

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Hirata et al. (US 5,353,311) teaches a frequency modulation circuit (DDS 1, Fig. 1, Fig. 6) for generating frequency hopping FM signal from DDS1 to first phase locked loop via S3 (Fig. 1, col. 2, line 56 to col. 3, line 57), and phase locked oscillator 2 has sufficiently narrow loop band to remove spurious signal from the hopping signal S3 (col. 3, lines 52-57).

Bezzam et al. (US 6,115,586) teaches the frequency synthesizer for a multiple loop radio frequency synthesizer (abstract, Fig. 506, summary of invention), having PLL 132, 138, 150, and SSB mixer 146, Fig. 6, Fig. 5). Bezzam teaches the improved synthesizer technique of integrating three PLL onto a single chip for reducing the cost with minimized phase noise (col. 1, line 62 to col. 2, lines 11).

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles C. Chow whose telephone number is (703)-306-5615. The examiner can normally be reached on 8:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on (703)-305-4385. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.


Information regarding the status of an application may be obtained from the Patent

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Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Charles Chow *CC*

March 21, 2005.


EDWARD F. URBAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2685